SOUTHEASTERN LOUISIANA UNIVERSITY DUAL ENROLLMENT PROGRAM

MATHEMATICS 161 COURSE INFORMATION SHEET/SAMPLE SYLLABUS 2023-2024

COURSE TITLE:	College Algebra	**CREDIT:**	3 semester hours
ONLINE TEXT:	*College Algebra and Trigonometry* 11th Edition, by Sullivan accessed through the *MathXL* website	**PUBLISHER:**	Pearson Education

SOUTHEASTERN INSTRUCTORS OF RECORD:

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DUAL ENROLLMENT (DE) MATH 161 is a hybrid course that provides high school students the opportunity to earn college credit for College Algebra while still in high school. The course content is primarily delivered online through *MathXL* and/or *MoodleDE*. The Southeastern instructors of record develop course content and provide online instructional materials such as videos and step-by-step learning aids, ungraded instructional assignments, and ungraded exam study guides to help prepare students to complete the graded assignments and the exams, which are also provided by the Southeastern instructors of record. The high school teachers will act as facilitators; they will assist with student registration and enrollment, proctor exams, provide supplemental instruction, and serve as a daily learning resource for students as they assimilate course content. The Southeastern instructors of record are assigned to specific schools, and will visit the classes periodically. The students' final course grades are assigned by the instructors of record.

PREREQUISITE: Eligibility for Southeastern Mathematics Dual Enrollment courses, as outlined in the Southeastern Dual Enrollment Eligibility Guidelines.

TRANSFERRING COURSE CREDIT: It is incumbent upon all students and parents to determine the transferability of Dual Enrollment course credit to other institutions. For in-state institutions, Southeastern courses can be cross-referenced using the Statewide Articulation Matrix to determine transferability (https://regents.la.gov/articulationandtransfer/).

COURSE DESCRIPTION: Mathematics 161 is a study of families of functions and their graphs. Topics include linear, polynomial, rational, exponential and logarithmic functions. Functions will be used to model and solve application-based problems. The typical weekly structure of the course includes in-class instruction, computer laboratory work, and out-of-class assignments. Computer and internet access are necessary for completion of all assignments, both in and out of class. Evaluations will be based on homework, quizzes, tests, and a final exam.

CALCULATORS: The TI-30XII (solar or battery) is required. The four-function calculator found on *MathXL* will be available on exams. NO OTHER CALCULATORS ARE ALLOWED ON TESTS, and thus are not recommended for use on homework or quizzes.

BREAKDOWN OF MATERIAL COVERED

Test	Topics Covered	Corresponding Quizzes
Unit 1	Functions, Their Graphs and Properties; Circles; Lines and Linear Functions; Linear Equations and Inequalities; Quadratic Function Properties and Graphs; Quadratic Equations	Quiz 1: Properties of Functions and Circles Quiz 2: Linear Functions and Equations Quiz 3:Quadratic Functions and Equations
Unit 2	Library of Functions and Transformations; Radical Equations and Equations with Rational Exponents; Polynomial Function Properties and Graphs; Polynomial Equations; Rational Function Properties and Graphs; Rational Equations; Polynomial and Rational Inequalities	Quiz 4: Library of Functions and Transformations Quiz 5: Equations with Radicals or Rational Exponents Quiz 6: Polynomial Functions and Equations Quiz 7: Rational Functions and Equations Quiz 8: Polynomial and Rational Inequalities
Unit 3	Composite Functions; One-to-One and Inverse Functions; Exponential Functions; Logarithmic Functions; Properties of Logarithms; Logarithmic and Exponential Equations; Financial Models; Additional Exponential and Logarithmic Applications	Quiz 9: Composite, One-to-one and Inverse Functions Quiz 10: Exponential and Logarithmic Functions Quiz 11: Properties of Logarithms, Exponential and Logarithmic Equations Quiz 12: Interest and Other Applications of Exponential and Logarithmic Functions

****COURSE GRADES:** Percentages earned as follows determine the course grade.

COURSE GRADE COMPONENTS

3 Tests plus a Comprehensive Final	= 68% of course grade
12 Quizzes	= 16% of course grade
22 Homework Sets	= 16% of course grade

COURSE GRADING SCALE

A	89.50% - 100%
B	79.50% - 89.49%
C	69.50% - 79.49%
D	59.50% - 69.49%
F	below 59.50%

Homework, quiz and test scores are reported immediately by *MathXL* upon submission.
The current overall course grade is available at all times through the *Results* page in *MathXL*.

WITHDRAWAL DEADLINE: The last day to withdraw from this course depends on whether the format of the course is fall-only, year-long, or spring-only. The withdrawal deadlines are given in the table below. No withdrawals from this course can be made after the date given here for each course format. Note that it is the student's responsibility to complete withdrawal forms and file them with the appropriate high school personnel.

Deadline to Withdraw	Course Format
Friday, October 27, 2023 at 12:30 p.m.	Fall-only (course ends before semester break)
Thursday, March 28, 2024 at 12:30 p.m.	Year-long or Spring-only (course ends in the spring)

COMPLETION DEADLINE: All coursework must be completed by the deadline shown in the table below, depending on whether the format of the course is fall-only, year-long, or spring-only. These deadlines are absolute; no credit will be given for coursework completed after the date given here for each course format.

Deadline to Complete All Coursework	Course Format
Friday, December 1, 2023	Fall-only (course ends before semester break)
Friday, April 12, 2024	Year-long (begins in August/September, ends in the spring)
Friday, May 3, 2024	Spring-only (begins in January, ends in the spring)

****HOMEWORK:** Homework will be assigned for each topic covered and will be completed online through *MathXL*. Homework need not be completed in one sitting, but it must be completed before the due date and time. ***Students must click the "Check Answer" and "Save" buttons after each homework question in order for it to be recorded properly***. Each homework assignment is worth 10 points, and there is a total of 22 homework assignments. At the end of the semester, the two lowest homework scores will be dropped; the remaining 20 homework scores make up 16% of the course

****QUIZZES:** There will be a quiz given approximately once per week, usually on material covered in two homework sets. Quizzes will be completed online through *MathXL*. Students will be able to submit each quiz up to 10 times, with the best score counted toward the course grade. Quizzes must be completed before the due date and time. ***Students must click the "Submit Quiz" button in order for it to be recorded properly***. Each quiz is worth 10 points, and there is a total of 12 quizzes. At the end of the semester, the two lowest quiz scores will be dropped; the remaining 10 scores make up 16% of the course grade.

****TESTS:** There are 3 unit tests plus a comprehensive final exam, all completed through *MathXL*. There will be a practice assignment for each test/exam, available at least one week prior through *MathXL*. The practice assignments cover the same topics that are covered on the actual tests/exams and are intended to aid the student in studying for the tests/exams; however, they are not timed and are not intended to mimic the tests/exams. Each test/exam is worth 100 points, and the lowest of the four grades is dropped. The remaining three grades make up 68% of the course grade.

****PLEASE NOTE:** All policies on course grading, including percentage weights of the different types of assignments and dropping of assignments and tests/exams, are currently under review and are subject to change for the 2023-2024 school year.

DUE DATES AND MAKE-UP POLICY:

- Refer to the calendar in *MathXL* for all due dates on homework assignments, quizzes and tests. These dates will be determined and posted by your facilitator.
- Make-up work will be allowed only in the event of a valid, documented excuse. Any missed work not accompanied by a valid, documented excuse will be assigned a grade of zero and that zero will be ineligible for dropping.
- Contact your facilitator immediately if you miss a test or an assignment. He/she will instruct you on how to proceed.
- All make-up work, including tests, must be completed upon return to school, no later than two weeks after the original due date as posted on the *MathXL* calendar for the assignment in question. Exceptions will be possible only in the event of documented extenuating circumstances, and will be considered on a case-by-case basis. Any request for consideration of special circumstances must be submitted by your facilitator to the Southeastern Louisiana University Mathematics Department within two weeks of the original due date for the assignment in question.
- All make-up homeworks and/or quizzes must be completed before the corresponding unit test is taken.

TECHNOLOGY REQUIREMENTS AND WORKING FROM HOME: Students are expected to have reliable internet and computer access outside of class, and they will be expected to complete homework assignments and quizzes outside of class. The online material for this course can be accessed from any computer with an internet connection. Learning aids, videos, and all homework assignments, quizzes and exercises are found on *MathXL* at www.mathxl.com. Additional videos, learning aids, and course documents are found on *MoodleDE*. Once registered for the class site in *MathXL*, students will be able to login to the site from home with their logins and passwords. It is the student's responsibility to ensure that any computer used outside of class has the appropriate plugins for *MathXL* to function properly. This is done by clicking into the course and running the **Browser Check** found on the main page of the *MathXL* course. NOTE: It is the student's responsibility to ensure that all homework and quizzes submitted from home are properly saved on the site. Students should check their scores online to ensure that credit has been assigned upon submission of each and every assignment. If homework and quiz grades are not successfully sent from home and the deadline passes, the student may not be able to make up the work.

CLASS MEETINGS: Classes will meet at times determined by the high schools. Refer to your high school schedule for times and locations of all class meetings.

ATTENDANCE AND PARTICIPATION POLICIES:

- **Class Meetings**: Every student is expected to attend and actively participate in class.
- **Computer Work**: Every student is **required** to work on assignments for this course both in and out of class every week.
- If you wish to withdraw from this course, it is your responsibility to complete all procedures for withdrawing from a course.

TESTING: *All testing will be done in class, under strict supervision, following guidelines set forth by the Southeastern Louisiana University Mathematics Department.*

Students are expected to maintain the highest standards of academic integrity. Behavior that violates these standards is not acceptable. Actions that violate our standards of academic integrity include, but are not limited to, the following: use of unauthorized material, use of any website other than *MathXL*, use of an unauthorized calculator, communication with fellow students and/or other individuals during an examination, attempting to benefit from the work of another student, and similar behavior that defeats the intent of an examination or other class work. Cheating on examinations and plagiarism are considered very serious offenses and shall be grounds for disciplinary action as outlined in Southeastern Louisiana University's current General Catalogue. (http://www.southeastern.edu/resources/policies/policy_detail/acad_integrity.html)

TESTING RULES: Southeastern Louisiana University Mathematics testing guidelines include, but are not limited to, the following:

1. Arrive on time for testing. Each and every test/exam is only available for a certain pre-determined amount of time.
2. Your facilitator will provide you with scratch paper. No other paper is allowed.
3. All tests and final exams must be taken on school-owned Chromebooks or computers.
4. ALL belongings, including cell phones, smart watches and review materials, must be put away during testing, and should not be near your personal testing area.
5. Absolutely **no cell phones, smart watches or any other handheld communication devices** are allowed during testing. All cell phones must be turned OFF and put away out of sight. If a cell phone or smart watch is taken out and/or used during testing, it will result in a charge of academic misconduct and a score of ZERO on the test/exam (ineligible for dropping).
6. **No personal music devices** may be used during testing. Use of any such device during testing will result in a charge of academic misconduct and a score of ZERO on the test/exam (ineligible for dropping).
7. **No calculator other than the TI-30XII or the calculator contained within *MathXL* may be used during testing.** Use of another unsanctioned calculator during testing will result in a charge of academic misconduct and a score of ZERO on the test/exam (ineligible for dropping).
8. **No website other than *MathXL* and no other area of *MathXL*** may be accessed during testing. Accessing any such website during testing will result in a charge of academic misconduct and a score of ZERO on the test/exam (ineligible for dropping).
9. You may **not** write down any information pertaining to test or exam questions to take with you when you leave the classroom after testing. All scratch paper will be collected before you are allowed to leave. You may not share any test/exam information with anyone who has not taken the test/exam.

COMMUNICATION POLICY: Students are expected to use their Southeastern email addresses in all correspondence with their instructors of record.

DISABILITY ACCESS STATEMENT: If you are a qualified student with a disability seeking accommodations under the Americans with Disabilities Act, you are required to self-identify with your facilitator and/or the appropriate office at your school. That office or your facilitator will be required to forward all relevant information and paperwork to Southeastern Louisiana University. No accommodations will be granted without documentation from your school.

TITLE IX STATEMENT: Southeastern faculty and staff are committed to supporting our students and upholding gender equity laws as outlined by Title IX. Please be aware that if you choose to confide in a faculty or staff member regarding an issue of sexual misconduct, dating violence, or stalking, we are obligated to inform the university's Title IX Coordinator or Deputy Title IX Coordinator, who can assist you in connecting with all possible resources both on- and off-campus. For students who would like to speak with someone confidentially, the Student Counseling Center (985-549-3894) and the Student Health Center (985-549-2242) are both confidential resources.

FERPA GUIDELINES: Southeastern DE students have the same rights and responsibilities as any other Southeastern student. This includes the privacy protections afforded by the Family Educational Rights and Privacy Act (FERPA). Student are free to share their progress in their courses with their parent(s) if they so choose; however, course instructors may not speak with any parent about a student's progress in the course without the student first waiving FERPA rights. Southeastern's FERPA policy can be found here: http://www.southeastern.edu/resources/policies/policy_detail/ferpa.html. For more information on the US Department of Education FERPA, visit the website https://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html

APPEAL AND CHANGE OF GRADE: After a final course grade is recorded in the Records and Registration Office, a change of grade must be approved in sequence by the instructor of record/coordinator for DE math (Ms Ronni Settoon), the instructor's department head, and the academic dean of the College of Science and Technology. In the event of a contested final course grade, a student's written appeal of the grade must be submitted to the instructor within **thirty (30)** calendar days of final grades for the term being due. The grade appeal should also be submitted to Dr. Jeffrey Temple, Assistant Vice President for Academic Programs. Students wishing to appeal their final course grades should refer to the university's official Appeal and Change of Grade Policy here: http://www.southeastern.edu/resources/policies/policy_detail/appeal_grade.html.

OTHER UNIVERSITY AND DE POLICIES: Please see the University Policy Statements posted on *MoodleDE* in the Course Information section. Note that students are **required** to complete the Course Syllabus and Policy Validation and the Online Learning Validation on *MoodleDE*. More information and other important university policies and requirements can be found at these links:

- University General Catalogue https://www.southeastern.edu/resources/catalog/2022_2023/index.html
- Student Handbook https://www.southeastern.edu/admin/stu_affairs/assets/2016_2017_studenthandbook.pdf

For Dual Enrollment Program information, including transcript requests, password resets, academic dishonesty, student eligibility, and tuitions costs, see the program website here: https://www.southeastern.edu/future_students/dual_enrollment/

COURSE OBJECTIVES: Upon completion of Mathematics 161, students will be able to: solve linear, polynomial, rational, exponential and logarithmic equations; perform operations with linear, polynomial, exponential and logarithmic functions; analyze the graphs of linear, polynomial, exponential and logarithmic functions; use linear, polynomial, rational, exponential and logarithmic functions to model and solve application-based problems.

DE MATHEMATICS 161 UNIT LEARNING OUTCOMES

Topic	Student will be able to…
Functions, Their Graphs and Properties	Determine whether a relation represents a function; Find a function value; Find the value of x that yields a certain function value; Find the domain of a function defined by an equation; Obtain information about a function from its graph such as domain, range, function values, intercepts, local and absolute extrema, symmetry and intervals where the function is increasing, decreasing, and/or constant; Determine symmetry from the equation of a function.
Circles	Investigate properties of circles as an example of a relation that is not a function; Graph circles of the form $(x - h)^2 + (y - k)^2 = r^2$;Write the equation of a circle given its center and radius; Find equations of circles given circle properties.
Lines and Linear Functions	Calculate and interpret the slope of a line; Find the equation of a line given two points or its graph; Find equations of parallel and/or perpendicular lines; Find the intercepts of a line and graph the line given its equation; Graph linear functions and determine their characteristics; Use the average rate of change to identify linear functions; Solve applications involving linear models.
Linear Equations and Inequalities	Find solutions of linear equations and inequalities by considering the graphs of related linear functions; Solve linear equations; Solve problems that can be modeled by linear equations; Use interval notation and set notation to give solutions to inequalities; Solve simple and compound linear inequalities; Solve applications using linear inequalities.
Quadratic Function Properties and Graphs	Graph a quadratic function using its vertex, axis of symmetry, and intercepts; Determine intervals where a quadratic function increases and decreases; Find a quadratic function given its vertex and one other pint; Solve applications involving quadratic functions.
Quadratic Equations	Factor second-degree polynomials or identify as prime; Find solutions of quadratic equations and inequalities by considering the graphs of related quadratic functions; Solve quadratic equations by factoring; Solve quadratic equations by the square root method; Solve quadratic equations using the quadratic formula.
**** End of Unit 1 ****	
Library of Functions and Transformations	Graph the identity, squaring, square root, cubing, cube root, reciprocal, square of a reciprocal, and absolute value functions; Graph functions using translations; Graph functions using compressions and stretches; Graph functions using reflections about the axes; Graph functions using multiple transformations.
Radical Equations and Equations with Rational Exponents	Understand the meanings of $a^{1/n}$ and $a^{-m/n}$; Solve equations with variable expressions as radicands for square roots or cube roots; Find solutions of radical equations by considering the graphs of related radical function; Eliminate extraneous roots from the solution sets of radical equations; Solve equations with variables raised to rational exponents; Solve radical and rational exponent equations that are quadratic in form using u-substitution; Solve rational exponent equations by factoring out the greatest common factor and using the zero-product property when appropriate.
Polynomial Function Properties and Graphs	Identify polynomial functions and their degrees; Graph a polynomial function using transformations when appropriate; Identify the real zeros of a polynomial function and their multiplicities; Draw the graph of a polynomial function by hand; Find the equation of a polynomial function given information about its intercepts, their multiplicities, and another specific point on the graph; Be able to multiply out the factors of a polynomial to rewrite the function in descending powers of x.

Polynomial Equations	Find solutions of polynomial equations and inequalities by considering the graphs of related polynomial functions; Solve polynomial equations of higher degree; Use factoring by grouping for cubic equations and *u*-substitution in equations of quadratic type.
Rational Function Properties and Graphs	Find the domain of a rational function given an equation or a graph; Find intercepts for the graph of a rational function given the equation or graph; Find the horizontal and vertical asymptotes of a rational function given an equation or a graph; Find an oblique asymptote of a rational function given its graph; Draw the graph of a rational function by hand; Find the equation of a rational function given information about its intercepts, asymptotes, and another specific point on the graph.
Rational Equations	Find solutions of rational equations by considering the graphs of related rational functions; Solve proportions and other rational equations algebraically; Use *u*-substitution to solve equations of quadratic type.
Polynomial and Rational Inequalities	Solve polynomial inequalities algebraically and from a given graph; Solve rational inequalities algebraically and from a given graph.
**** End of Unit 2 ****	
Composite Functions	Evaluate composite functions; Form composite functions and find their domains; Solve applications involving composite functions.
One-to-One and Inverse Functions	Determine whether a function is one-to-one; Find the inverse of a function defined by an equation; Obtain the graph of the inverse function from the graph of the function; Find the range of a one-to-one function from the domain of its inverse; Determine properties of the inverse of a function.
Exponential Functions	Identify linear and exponential functions and find their equations; Graph exponential functions; Find solutions of exponential equations by considering the graphs of related exponential functions; Solve exponential equations of the form $b^x = b^y$, $b \neq 1$; Find the equations of exponential functions from descriptions, from tables of values, and from graphs; Solve applications involving exponential functions.
Logarithmic Functions	Change exponential statements to logarithmic statements and vice versa; Evaluate logarithmic expressions; Determine the domains of logarithmic functions; Graph logarithmic functions; Find solutions of logarithmic equations by considering the graphs of related logarithmic functions; Solve simple logarithmic equations using algebraic methods; Solve applications related to logarithmic functions.
Properties of Logarithms	Use the properties of logarithms to rewrite or simplify logarithmic expressions; Write logarithmic expressions as a sum or difference of logarithms; Write logarithmic expressions as a single logarithm.
Logarithmic and Exponential Equations	Solve logarithmic equations, both simple form and those requiring the use of properties to rewrite them in simple form; Solve exponential equations by equating exponents with same bases, changing to logarithmic form, and/or using *u*-substitution for equations of quadratic type.
Financial Models	Use memorized formulas for compounded interest problems; Determine the future value of a lump sum of money; Determine the present value of a lump sum of money; Solve applications involving financial models; Determine the rate of interest or time required to double or triple a lump sum of money.
Additional Exponential and Logarithmic Applications	Solve applications using the law of uninhibited growth; Solve applications using the law of decay; Solve applications with given formulas.
**** End of Unit 3 ****	